CLIMATE LOCATION DEFAULTS FOR FOCS RUSLE

CLIMATE STATION CODE	FIELD OFFICE
89AR120ET120	BEAVER
89AR130ET110	BUFFALO
89AR140ET120	CHEYENNE, SHATTUCK
89AR145ET110	WOODWARD
89AR150ET100	ALVA
89AR150ET120	HOLLIS, MANGUM, SAYRE
89AR165ET120	ALTUS
89AR170ET120	CORDELL
89AR175ET100	CHEROKEE
89AR175ET120	HOBART
89AR180ET130	FREDERICK
89AR190ET130	ANADARKO, LAWTON
89AR200ET120	WALTERS
89AR220ET130	CHICKASHA
89AR225ET130	DUNCAN, WAURIKA
89BR165ET120	CLINTON, TALOGA
89BR175ET110	FAIRVIEW
89BR185ET110	MEDFORD
89BR185ET120	WATONGA
89BR190ET110	ENID
89BR200ET120	KINGFISHER, NEWKIRK
89BR200ET130	EL RENO
89BR210ET120	PERRY
89BR220ET130	GUTHRIE
90R220ET140	OKLAHOMA CITY
90R225ET120	PAWNEE
90R225ET130	STILLWATER
90R225ET150	PAWHUSKA, PURCELL
90R230ET150	NORMAN
90R240ET120	DEWEY
90R240ET140	CHANDLER
90R240ET150	PAULS VALLEY, SHAWNEE
90R250ET120	NOWATA
90R250ET130	CLAREMORE, TULSA
90R250ET150	ARDMORE, MARIETTA, SULPHUR
90R255ET110	MIAMI
90R255ET120	VINITA

CLIMATE LOCATION DEFAULTS FOR FOCS RUSLE

CLIMATE STATION CODE	FIELD OFFICE
90R260ET130	BRISTOW, PRYOR, WAGONER
90R260ET150	ADA, OKEMAH, WEWOKA
90R270ET140	MUSKOGEE, OKMULGEE
90R270ET160	COALGATE, DURANT, HOLDENVILLE, MADILL, TISHOMINGO
90R275ET150	EUFAULA
90R275ET160	MCALESTER
90R280ET160	ATOKA
91R100ET120	GUYMON
91R70ET100	BOISE CITY
97R280ET160	ANTLERS, HUGO
97R290ET150	IDABEL
98BR260ET120	JAY
98BR260ET130	TAHLEQUAH
98BR270ET130	STILWELL
98BR275ET130	SALLISAW
98BR275ET150	STIGLER
98BR280ET140	POTEAU
98BR280ET150	WILBURTON

CHAPTER 2

SOIL ERODIBILITY FACTOR (K)

SOIL ERODIBILITY FACTOR (K)

Soil erodibility is a complex property and is thought of as the ease with which soil is detached by splash during rainfall and/or by surface flow. From a fundemental standpoint, however, soil erodibility should be viewed as the change in the soil per unit of applied external force or energy. Just as in USLE, RUSLE uses a restrictive and applied definition of soil erodibility. Soil erodibility is related to the integrated effect of rainfall, runoff, and infiltration on soil loss and is commonly called the soil erodibility factor (K).

The soil erodibility factor (K) in RUSLE accounts for the influence of soil properties on soil loss during storm events on upland areas.

In practical terms, the soil erodiblity factor is the average long-term soil and soil-profile response to the erosive powers of rainstorms, that is, the soil erodibility factor is a lumped parameter that represents an integrated average annual value of the total soil and soil profile reaction to a large number of erosion and hydrologic processes. These processes consist of soil detachment and transport by raindrop impact and surface flow, localized deposition due to topography and tillage induced roughness, and rainwater infiltration into the soil profile.

SEASONAL K VALUES

K values are difficult to estimate mainly because of antecedent soil-water and soil-surface conditions and because of seasonal variations in soil properties. Because the value of these conditions and properties tends to be consistent for a season, it is thought that seasonal K values can reduce errors in soil-loss estimates.

Variations in K through the seasons seem to be primarily related to three factors: soil freezing, soil texture, and soil water. Of these, the soil freezing effect is probably the most difficult to evaluate. The effects of all three are now included in the average annual value.

It has been shown that the soil water content at the time of initial freezing, the rate of the soil freezing, and the number of freeze-thaw cycles can significantly affect soil aggregation and aggregate stability in the spring at the time of thawing. Freeze-thaw cycling generally leads to low bulk density of the surface soil. Conditions of low density and high soil water provide a soil surface that is very susceptible to soil detachment and transport. Differences in soil density may persist even after frost layers have thawed. This, combined with intense spring rains, often results in large soil losses. Thus, freezing and thawing tend to increase the soil erodibility factor. Soil-erosion resistance is at a minimum immediately after the soil has thawed and tends to increase with time after thawing. The greater the number of freeze-thaw cycles, the longer the erosion resistance of a soil is at a minimum.

AVERAGE ANNUAL K FACTORS FOR USE IN RUSLE

The following adjusted K factor tables are to be used for soil loss calculations using RUSLE in the counties of *Cimarron* and *Texas:*

K listed in FOTG	Adjusted K for RUSLE
.15	.18
.17	.20
.20	.24
.24	.28
.28	.33
.32	.38
.37	.44
.43	.51
.49	.58

The following adjusted K factors are to be used for soil loss calculations using RUSLE in *Beaver* county:

K listed in FOTG	Adjusted K for RUSLE
.15	.16
.17	.18
.20	.21
.24	.26
.28	.30
.32	.34
.37	.40
.43	.46
.49	.52

The following adjusted K factors are to be used for soil loss calculations using RUSLE in the counties of *Choctaw, McCurtain* and *Pushmataha:*

K listed in FOTG	Adjusted K for RUSLE
.15	.13
.17	.15
.20	.18
.24	.21
.28	.25
.32	.28
.37	.33
.43	.38
.49	.43

AVERAGE ANNUAL K FACTORS FOR USE IN RUSLE (CONT.)

The following adjusted K factors are to be used for soil loss calculations using RUSLE in all other counties in Oklahoma:

K listed in FOTG	Adjusted K for RUSLE
.15	.12
.17	.14
.20	.16
.24	.20
.28	.23
.32	.26
.37	.30
.43	.35
.49	.40